

REMARKS

The present Amendment and Response is intended to be fully responsive to all points of objections and/or rejections raised by the Examiner and is believed to place the application in condition for allowance. Applicants assert that the present invention is new, non-obvious and useful. Prompt reconsideration and allowance of the claims are respectfully requested.

Status of the Claims

Claims 1-10 are pending in the current application.

Claims 1-5 and 8 have been amended without prejudice.

Claim 10 has been newly added.

Applicants assert that the amendments of claims 1-5 and 8 and the newly added claim 10 are fully supported by the specification of record and add no new matter.

Remarks to Specification and Drawing Objections

The Office Action of April 3, 2009 objected the specification and drawings of the instant application, alleging that the specification fails to provide antecedent basis for the claimed subject matter, and the drawings fail to show every feature of the invention specified in the claims. Specifically, the Office Action refers to the element of “a separate trench conductor material” being recited in claim 5.

Applicants have amended claim 5 to read, in part, “the trench conductor”, which is recited in independent claim 1 from which claim 5 depends, replacing “a separate trench conductor material”. By this amendment, objections to the specification and drawings are now deemed moot. In view of this, Applicants respectfully request that objections to the specification and drawings be withdrawn.

Remarks to Claim Objections

The Office Action of April 3, 2009 objected claim 8 alleging informalities in line

1 and line 3. Applicants have amended claim 8 to address the above alleged informalities. Specifically, part of line 1 of claim 8 has been amended to read “the trench type storage device”, and part of line 3 of claim 8 has been amended to read “nanotubes”, both as being suggested by the Examiner.

In view of the above amendment, Applicants respectfully request that objections to claim 8 be withdrawn.

Remarks to Claim Rejections

Claim Rejections - 35 USC §112

The Office Action of April 3, 2009 rejected claims 5 and 8 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, alleging that the element of “a separate trench conductor material” recited in claim 5 lacks descriptive support from the specification, and the element of “the trench dielectric” recited in claim 8 lacks antecedent basis.

In response, Applicants have amended claim 5 to recite “the trench conductor”, instead of “a separate trench conductor material”, which is clearly supported by claim 1 from which claim 5 depends. Applicants have also amended claim 8 to depend from claim 2, instead of claim 1, which provide antecedent basis for the “trench dielectric”.

In view of the above amendment, Applicants respectfully request that rejections of claims 5 and 8 made under 35 U.S.C. §112, second paragraph, be withdrawn.

Claim Rejections - 35 USC §102

The Office Action of April 3, 2009 rejected claims 1-7 under 35 U.S.C. §102(b) as being anticipated by Hsu et al. (US 6,333,598, “Hsu”). In particular, the Office Action alleges that Hsu teaches a trench dielectric 16 between the alleged nanotubes 22 and sidewalls of the alleged trench, and the alleged nanotubes 22 form an open cylinder.

Applicants respectfully disagree.

At least with regard to claim 2, Applicants would like to point out that in Hsu, the alleged trench dielectric 16 is formed on top, and not on sidewalls, of substrate 12 (“insulator layer 16 directly overlays substrate 12”, col. 11, lines 19-20 of Hsu). In fact, Hsu never teaches, suggests, or even implies insulator 16 being formed between the alleged nanotubes 22 and sidewalls of the alleged trench in substrate 12, contrary to what is specifically required by claim 2 of the present invention. Applicants have rewritten claim 2 into independent form incorporating all the distinct features and/or elements of claim 1 from which claim 2 depends. Amended claim 2 does not add any new features.

In addition, the alleged nanotubes 22 do not form an open cylinder, contrary to what is alleged and what is specifically required by claim 3. As being clearly illustrated in FIGS. 1-31, the alleged nanotubes 22 cover the bottom of the alleged trench in substrate 12, and thus do not form an open cylinder.

Notwithstanding the above and without conceding any appropriateness of claim rejections made in the Office Action, Applicants have amended claims 1, together with other claims, without prejudice in order to advance prosecution of the present application.

In particular, amended independent claim 1 includes additional distinct features of “said trench conductor and said substrate having a co-planar top surface”, among others. Applicants assert that at least the above newly added features are not taught, suggested, or implied by all the prior art references of record, in particular by Hsu, alone or in combination. In view of the above, Applicants respectfully submit that claim 1 of present invention is neither anticipated by, nor obvious over, all the prior art references of record and is patentable.

Claims 2-7 depend from claim 1 and include all the distinctive elements of claim 1 as well as other distinguishing features and/or elements. Therefore, claims 2-7 are patentable for at least the reasons as discussed above with regard to claim 1.

In view of the above, Applicants respectfully request that rejections of claims 1-7 made under 35 U.S.C. §102(b) be withdrawn.

Claim Rejections - 35 USC §103

The Office Action of April 3, 2009 rejected claim 8 as being unpatentable over Hsu, and rejected claim 9 as being unpatentable over Hsu in view of Yoshikazu Homma et al. ("Growth of suspended carbon nanotube networks on 100-nm scale silicon pillars", Applied Physics Letters, Vol. 81, No. 12, Sept. 6, 2002, pp 2261-2263, "Homma"), both under 35 U.S.C. §103(a).

Claims 8-9 depend from claim 1 and include all the distinctive elements of claim 1 as well as other distinguishing features and/or elements. Therefore, claims 8-9 are patentable for at least the reasons as discussed above with regard to claim 1.

In view of the above, Applicants respectfully request that rejections of claims 8-9 made under 35 U.S.C. §103(a) be withdrawn.

Conclusion

In view of the preceding remarks, Applicants respectfully submit that all pending claims are now in condition for allowance. Favorable reconsideration and allowance of the claims are respectfully requested.

No fees are believed to be due in connection with this paper. However, if there is any such fee due, please charge any such fee to the deposit account No. 09-0458.

Respectfully submitted,

/Yuanmin Cai/

Yuanmin Cai, Ph.D.
Agent for Applicants
Registration No. 56,513

Dated: June 25, 2009

INTERNATIONAL BUSINESS MACHINE CORPORATION
Intellectual Property Law Department, East Fishkill
2070 Route 52, Bldg-321, Zip-482
Hopewell Junction, NY 12533
Tel: (845) 894-8469
Fax: (845) 892-6363